UNCEBD Task Team on Training, Competencies and Capacity Development

Welcome

RALF BECKER (UN STATISTICS DIVISION, NY)
CERI REGAN (DATA SCIENCE CAMPUS, ONS, UK)
DOMINIKA NOWAK (STATISTICS POLAND)

Thursday 27th Jan 2022, session 2.4
Agenda

(All sessions are hybrid)

09:00 – 10:30   Capability building knowledge exchange with Regional Hubs and NSOs
                 ➢ Overview of the products and tools available
                 ➢ Discussion

10:30 – 12:00   Developing the roles of the Regional Hubs
                 ➢ Current plans for the Hubs
                 ➢ Solution focused discussion and planning

12:00 – 13:00   Lunch
Agenda continued

13:00 – 14:30 Regional Hubs and their provision of data capacity development roles
   - Understanding needs of Hubs
   - Solution focused discussion and planning

14:45 – 16:00 UN-CEBD Task Team on Training & Regional Hubs
   - Planning for the capability needs of Regional Hubs
UN-CEBD Task Team on Training, Competencies and Capacity Development

Capability Building Knowledge Exchange for UNGP Regional Hubs and NSOs
Overview

• UN Big Data Competency Framework - complete

• UN Big Data Maturity Matrix - complete

• UN Big Data Training Curriculum – under development
  • Courses nearing completion

• UN Big Data Catalogue – under development
Task Team on Training, Competencies and Capacity Development

• We aim to provide:
  • Frameworks and training for consistency in global big data capability building

• Products that empower:
  ➢ the individual to take control of their own learning development
  ➢ the NSO to understand their knowledge gaps
UN Big Data Competency Framework

Dominika Nowak (do.nowak@stat.gov.pl)
Head of Experimental Research and Analyses Unit
Statistics Poland

(On behalf of the UN-CEBD Task Team on Training, Competencies and Capacity Development)
UN Big Data Maturity Matrix

Ceri Regan (ceri.regan@ons.gov.uk)
Senior International Programme Manager
Data Science Campus, Office for National Statistics, UK

(On behalf of the Task Team on Training, Competencies and Capacity Development)
UN Big Data Maturity Matrix

- Is available (pdf) via the UN website
  - Is being moved online to provide an interactive tool

- Self-assessment tool: measures organisational level big data maturity and can help the NSO to:
  - Identify strengths and weaknesses
  - Produce a Development Plan or road map to improve “maturity”
UN Big Data Maturity Matrix

Set against four Big Data dimensions at the NSO:
- Legal Frameworks
- IT Infrastructure
- Human resources
- Applications/projects

There are three steps to self-assessment:
1. Set your goal/target of where you want the NSO to be in terms of Big Data
2. Answer some questions that establish where the NSO currently is
3. Receive some results about your ‘gap’
Maturity Matrix

Maturity Matrix is a self-assessment tool that can be used to help the organisation understand the extent to which it has developed or implemented. It aims to help the organisation understand its level of "organisational maturity" with respect to big data development, and also to identify its strengths and weaknesses from which a development plan or road map may be produced.

The Maturity Matrix can be used to find the current level of big data maturity, as well as to define the target level for the organisation. It can help to identify:

a) where work is needed, and
b) what the priorities are for the organisation.

There are two tiers:

• Tier 1: High-Level Maturity Matrix – this may be used to set the target level for the organisation across each dimension (this can be different for each dimension)
• Tier 2: Detailed level Maturity Matrix – this section is composed of questions, answering which, will indicate the current level of organisational Maturity.

---

**Step 1**

Goals

Learn more about the various dimensions in the matrix and set goals for each of the dimensions

Set Goals

**Step 2**

Assessment

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy elmod tempor incididunt ut labore et
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.

**Legal & Policy Framework**

- Pre-Foundation: Not started
- Foundation: In progress
- Practitioner: Completed

**IT Infrastructure**

- Pre-Foundation: Not started
- Foundation: Completed
- Practitioner: Not started

**Human Resources**

- Pre-Foundation: Not started
- Foundation: Completed
- Practitioner: Completed

Option to submit to UN
Step 4: Receive guidance and training recommendations

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit.
Useful links

- UN Big Data Maturity Matrix

Any Questions?
Task Team on Training, Competencies and Capacity Development

UN Big Data Training Curriculum

Ceri Regan (ceri.regan@ons.gov.uk)
Senior International Programme Manager
Data Science Campus, Office for National Statistics, UK

(On behalf of the Task Team on Training, Competencies and Capacity Development)
Overview

• The development of the UN Big Data Training Curriculum

• What is already available?

• Future developments

• Next steps
Development of the UN Big Data Training Curriculum

• The Task Team on Training, Competencies and Capacity Development has been working with four of the Big Data Task Teams:
  • AIS (Shipping) Data
  • Scanner Data
  • Earth Observation Data
  • Mobile Phone Data

• All curricula are being pulled into one overarching curriculum
• Individual courses are being placed into a searchable training catalogue, along with courses that already exist from other providers
Development of the UN Big Data Training Curriculum

Our Objective

• To develop a Big Data training curriculum, that:
  • Is focused on delivering specific big data goals at the NSO
  • Considers different Big Data knowledge areas, audiences and proficiency levels
  • Maps to the Competency Framework and Maturity Matrix
  • Makes online training available free of charge, wherever possible
Development of the UN Big Data Training Curriculum

For each of the Task Teams we worked with

Developed a Strategic Outcome

To utilise AIS data via the UNGP for the development of Faster Economic Indicators

What Job Behaviours expect to see?

What are the needs of different audiences?

What is the best way to learn?
## Development of the UN Big Data Training Curriculum

<table>
<thead>
<tr>
<th>Foundation Level</th>
<th>Intermediate Level</th>
<th>Export/Advanced Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Areas &gt;&gt;</td>
<td>Courses &gt;&gt;</td>
<td>Availability</td>
</tr>
</tbody>
</table>

### Courses >>

<table>
<thead>
<tr>
<th>Knowledge Area</th>
<th>Coding</th>
<th>Big Data Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Python</td>
<td>Advanced Python</td>
<td>Intro to ML Methods</td>
</tr>
<tr>
<td>Intro to R</td>
<td>Intermediate R</td>
<td>Agile</td>
</tr>
<tr>
<td>Advanced R</td>
<td>Advanced ML in R</td>
<td>UN Big Data Leadership Hub</td>
</tr>
<tr>
<td>Intro to SQL</td>
<td>Intro to ML in Python</td>
<td>International DS Accelerator Monitoring</td>
</tr>
<tr>
<td>Intro to GIS</td>
<td>Advanced GIS</td>
<td>International DS Knowledge Exchange</td>
</tr>
<tr>
<td>Intermediate GIS</td>
<td>Intro to Data vis</td>
<td>Developing the Data Strategy</td>
</tr>
<tr>
<td>Intermediate Data vis</td>
<td>Advanced Data vis</td>
<td></td>
</tr>
<tr>
<td>Advanced Data vis</td>
<td>Intro to Data Ethics</td>
<td></td>
</tr>
<tr>
<td>Data Ethics</td>
<td>Data Literacy</td>
<td></td>
</tr>
<tr>
<td>Data Literacy</td>
<td>Coding Good Practices</td>
<td></td>
</tr>
<tr>
<td>Coding Good Practices</td>
<td>Optimizing use of the UN Big Data</td>
<td></td>
</tr>
<tr>
<td>Optimizing use of the UN Big Data</td>
<td>Further Methodology</td>
<td>Long-term mentoring</td>
</tr>
<tr>
<td>Further Methodology</td>
<td>The UN Big Data</td>
<td>UN &amp; UK Campus</td>
</tr>
<tr>
<td>The UN Big Data</td>
<td>Methodology</td>
<td>UN &amp; UK Campus</td>
</tr>
<tr>
<td>Methodology</td>
<td>Project Management</td>
<td>UN &amp; UK Campus</td>
</tr>
<tr>
<td>Project Management</td>
<td>UN Big Data Leadership Hub</td>
<td>ONS</td>
</tr>
<tr>
<td>UN Big Data Leadership Hub</td>
<td>International DS Hub</td>
<td></td>
</tr>
<tr>
<td>International DS Hub</td>
<td>UN &amp; UK Campus</td>
<td></td>
</tr>
<tr>
<td>UN &amp; UK Campus</td>
<td>ONS</td>
<td></td>
</tr>
</tbody>
</table>

### Availability

<table>
<thead>
<tr>
<th>UK Campus</th>
<th>UK Campus</th>
<th>EO</th>
<th>EO</th>
<th>EO</th>
<th>EO</th>
<th>EO</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK Campus</td>
<td>UK Campus</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
</tr>
<tr>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
<td>EO</td>
</tr>
</tbody>
</table>

### Audience

<table>
<thead>
<tr>
<th>Manager/Decision Maker</th>
<th>Project Manager</th>
<th>Data Scientist/Data Analyst/Statistician</th>
<th>Other NSO staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

---

Note: The table above outlines the curriculum for training in big data at the United Nations, detailing courses and their availability across different levels and audiences.
Development of the UN Big Data Training Curriculum

## Data Training Curriculum

<table>
<thead>
<tr>
<th></th>
<th>Data Preservation</th>
<th>Raising Awareness of Big Data</th>
<th>Task Team Curricula - under development GSBPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Data Leadership</td>
<td></td>
<td>The Art of the Possible (Priority)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Acquisition</td>
<td>Data Management</td>
</tr>
<tr>
<td></td>
<td>Privacy Preserving Techs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our Priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opportunity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### UN & UK Campus

<table>
<thead>
<tr>
<th>UN &amp; UK Campus</th>
<th>ONS</th>
<th>Open Mined</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
<th>In Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table represents the curriculum development status for various topics, with 'In Dev' indicating in development and 'x' indicating completed.

---

**UNBigData**
What is already available?

- There are many courses out there that are already available online, some are free or offer good value for money – we are collating & checking these

- **Privacy Preserving Techniques** (with Open Mined, Oxford Uni, and partners)
  - Our Privacy Opportunity - (Foundation level)
  - Foundations of Private Computation – (Intermediate level)
  - Federated Learning Across Enterprises – (Intermediate level) *under development*
  - Federated Learning on Mobile – (Intermediate level) *under development*
What is already available?

• Mentoring opportunities
  ✓ Grow skills
  ✓ Build a project prototype for implementation at the NSO
  ✓ Assist the NSO on their big data journey
Mentoring Opportunities

1. (Short-term) – International Data Science Accelerator Programme
   ◦ Run jointly by UNSD and the UK Data Science Campus
   ◦ Matches Mentors’ skills with Mentee project submissions - internationally
   ◦ Aimed at current Analysts at the NSO who are building their DS skills
   ◦ 12 week programme, 1 day a week (12 days)

The official programme will launch on 31st January

Contact Geanina.sopron@ons.gov.uk for more information
2. (Long-term) – International Development Mentoring Programme
   • Offered by the ONS FCDO Data Science Hub
   • Focused on using data science for effective development in low and middle-income countries
   • Provide on-going mentorship – guide, advise and problem-solve together
   • Can also provide training where required

Contact tim.harris@fcdo.gov.uk at the FCDO Data Science Hub for more information
Future Developments – Art of the Possible

- Priority - Raising Awareness / Foundation section of the Curriculum
  - What is Big Data? – *Task Team on Training*
  - What is Possible with AIS (Shipping) Data? – *AIS Task Team with Training coach*
  - What is Possible with Scanner Data? – *Scanner Task Team with Training coach*
  - What is Possible with Earth Observations Data? – *EO Task Team with UNITAR and Training coach*
  - What is Possible with Mobile Phone Data? – *MPD Task Team with Training coach*

Aim for courses to be ready by end of March 2022
Future Developments – Big Data Leadership

- We are exploring different routes for development in Big Data Leadership
- International Data Masterclass programme:
  - Data-driven decision-making & Policy-making
  - Communicating compelling narratives through data
  - Data science and new frontiers
- Global Steering Committee and Working Group currently reviewing and developing the content

Watch this space!
Future Developments – Machine Learning

Need to explore and develop the ML curriculum:

• In partnership with the ML2021/22 Group
• What ML work are NSOs looking to do?
• What job behaviours are needed?
• What skills are needed?

Introduction to Python / R for Analysis

Statistics in Python / R

Introduction to ML in Python / R

Learning Pathway for all

1. NLP
2. ML algorithms
3. ML deployment
Next Steps

• Fully incorporate Task Team curricula into overarching Curriculum matrix
• Continue to work with Task Teams to develop their curricula and courses
• Continue to expand the curriculum to incorporate new knowledge areas
• Continue the search for courses that are already available – online, free, fit for purpose & can be recommended
• Fill in the gaps (not quick!)
• Work to link up training to the Competency Framework and Maturity Matrix
• Make all courses available via the new UN Catalogue (see final session)
Thank you

Any questions?
Task Team on Training, Competencies and Capacity Development

UN Big Data Training Catalogue

Ralf Becker (beckerr@un.org)
Chief, Statistical Capacity Management Section
United Nations Statistics Division, NY

(On behalf of the Task Team on Training, Competencies and Capacity Development)
Useful links

- UN Big Data website
- UN Task Team on Training, Competencies and Capacity Development website
- Competency Framework for big data acquisition and processing
- UN Big Data Maturity Matrix

Any Questions?